CLAIMS

1. A method for providing a phase rotation of a received signal, the method comprising:

receiving one or more control signals, each control signal provided to adjust a particular characteristic of one or more circuit elements associated with a receive signal path used to process the received signal;

determining a phase rotation corresponding to an operating state defined by the one or more control signals; and

rotating a phase of the received signal by an amount related to the determined phase rotation.

2. The method of claim 1, further comprising:

downconverting and digitizing the received signal to provide inphase (I_{IN}) and quadrature (Q_{IN}) samples, and

wherein the rotating is performed on the I_{IN} and Q_{IN} samples to generate phase rotated I_{ROT} and Q_{ROT} samples.

3. The method of claim 2, wherein resolution of the I_{ROT} and Q_{ROT} samples is maintained the same as resolution of the I_{IN} and Q_{IN} samples.

4. The method of claim 2, wherein the I_{ROT} and Q_{ROT} samples have four bits of resolution.

5. The method of claim 1, wherein the rotating is performed by a complex multiply.

6. The method of claim 1, wherein the rotating is performed digitally.

7. The method of claim 1, wherein the phase of the received signal is rotated in discrete increments.

8. The method of claim 7, wherein the rotating is performed in 90° increments.

9. The method of claim 1, wherein the determined phase rotation has two or more bits of resolution.

10. The method of claim 1, wherein the rotating is performed at a particular designated time such that phase discontinuity in the received signal is reduced when the one or more circuit elements are adjusted.

11. The method of claim 1, wherein at least one control signal is provided to switch the received signal through a plurality of signal paths, each signal path associated with a particular phase.

12. The method of claim 1, wherein at least one control signal is provided to adjust a circuit element located directly in the receive signal path.

13. The method of claim 1, wherein the determining is performed with a look-up table.

14. The method of claim 13, wherein the look-up table is programmable.

15. The method of claim 1, wherein the received signal is a CDMA signal.

16. A method for providing a phase rotation of a received signal in a CDMA receiver unit, the method comprising:

receiving one or more control signals, each control signal provided to adjust a particular characteristic of one or more circuit elements in a receive signal path of the receiver unit;

conditioning the received signal with the circuit elements in accordance with the one or more control signals to generate a conditioned signal;

downconverting and digitizing the conditioned signal to generate inphase (I_{IN}) and quadrature (Q_{IN}) samples;

determining a phase rotation corresponding to an operating state defined by the one or more control signals; and

rotating a phase of the I_{IN} and Q_{IN} samples by an amount related to the determined phase rotation to generate phase rotated I_{ROT} and Q_{ROT} samples.

17. A method for adjusting a phase rotation of a received signal, the method comprising:

receiving one or more control signals, each control signal provided to adjust a particular characteristic of one or more circuit elements associated with the receive signal path;

determining a phase shift corresponding to an operating state defined by the one or more control signals; and

adjusting a phase of the received signal by an amount related to the determined phase shift.

18. A receiver unit comprising:

a receiver operative to receive and condition a received signal in accordance with one or more control signals to generate a conditioned signal, wherein the receiver includes one or more circuit elements having one or more characteristics that are adjustable by the one or more control signals;

a controller coupled to the receiver and operative to determine a phase rotation corresponding to an operating state defined by the one or more control signals; and

a phase rotator coupled to the receiver and operative to receive and rotate a phase of the conditioned signal by an amount related to the determined phase rotation.

19. The receiver unit of claim 18, wherein the receiver is operative to downconvert and digitize the conditioned signal to provide inphase (I_{IN}) and quadrature (Q_{IN}) samples, and

wherein the phase rotator rotates the phase of the I_{IN} and Q_{IN} samples to generate phase rotated I_{ROT} and Q_{ROT} samples.

20. The receiver unit of claim 19, wherein the phase rotator includes

a first set of multiplexers operative to receive the I_{IN} and Q_{IN} samples and to provide the I_{IN} or Q_{IN} samples based on a first signal,

a first set of exclusive-OR gates coupled to the first set of multiplexers and operative to selectively invert the received samples based on a second signal, wherein outputs of the first set of exclusive-OR gates comprise the I_{ROT} samples,

a second set of multiplexers operative to receive the Q_{IN} and I_{IN} samples and to provide the Q_{IN} or I_{IN} samples based on the first signal, and

a second set of exclusive-OR gates coupled to the second set of multiplexers and operative to selectively invert the received samples based on a third signal, wherein outputs of the second set of exclusive-OR gates comprise the Q_{ROT} samples.

21. The receiver unit of claim 19, further comprising:

a demodulator coupled to the phase rotator and operative to process the I_{ROT} and Q_{ROT} samples to provide pilot symbols and data symbols, and to coherently demodulate the data symbols with the pilot symbols to generate recovered data.

22. The receiver unit of claim 21, wherein the demodulator includes

a pilot correlator operative to recover the pilot symbols from the I_{ROT} and Q_{ROT} samples, and

a data correlator operative to recover the data symbols from the I_{ROT} and Q_{ROT} samples.

23. The receiver unit of claim 18, wherein the phase rotator is operative to provide phase rotation in discrete increments.

24. The receiver unit of claim 23, wherein the phase rotator is operative to provide phase rotation in 90° increments.

25. The receiver unit of claim 18, wherein the receiver includes

at least one section comprising a plurality of signal paths, wherein each signal path is associated with a particular phase, and wherein at least one control signal is provided to switch the received signal through one of the signal paths.

26. A receiver unit for use in a CDMA communications system, the receiver unit comprising:

a receiver operative to receive and condition a received signal in accordance with one or more control signals to generate a conditioned signal, the receiver further operative to downconvert and digitize the conditioned signal to provide inphase (I_{IN}) and quadrature (Q_{IN}) samples, wherein the receiver includes one or more circuit elements having characteristics that are adjustable by the one or more control signals;

a controller coupled to the receiver and operative to determine a phase rotation corresponding to an operating state defined by the one or more control signals;

a phase rotator coupled to the receiver and operative to receive and rotate a phase of the I_{IN} and Q_{IN} samples by an amount related to the determined phase rotation to generate phase rotated I_{ROT} and Q_{ROT} samples; and

a demodulator coupled to the phase rotator and operative to process the I_{ROT} and Q_{ROT} samples to provide pilot symbols and data symbols, and to coherently demodulate the data symbols with the pilot symbols to generate recovered data.